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ABSTRACT

In sorting through predictions about future communications, it should be kept in mind that if one can think of a communication technology in the future, then that communication technology will stand a very good chance of becoming a reality. In other words, the forecasting of invention is not separate from invention itself. Secondly, the inventions of some of the more influential communications technologies will be absolutely unpredictable even by the more serious forecasters. It will also be impossible to predict which communication technology will be dominant (most widely influential) within a technologically advanced society at any significant distance in the future. Furthermore, new communication technologies will not make previous communication technologies obsolete, and predictions of the future of mass communication should not necessarily be based on the notion that changes will follow an acceleration curve. (A collection of quotations concerning communication technology is appended.) (HOD)

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FORECASTING MASS COMMUNICATION

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April 12, 1984
Central State Speech Association

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Historian Daniel Boorstin reminds us of what it was like a century ago to look to the future. According to Boorstin, Nineteenth Century America produced a symbol of its future in 1876 in Philadelphia.

There a crowd filled Machinery Hall at the International Exhibition. With the pulling of several levers the crowd cheered as a 700-ton Corlis steam engine set in motion an array of 8,000 machines spread over 13 acres -- machines which set to combing cotton, spinning cotton, tearing hemp, pumping water, sewing cloth, folding envelopes, sawing logs, shaping wood, making shoes and printing newspapers.

In Boorstin's eyes that "monster steam engine" was an appropriate symbol of the American future.(Boorstin, pp. 1-3)

Is there any doubt today what our symbol of the American future is? It is not the communication satelite, nor is it the space shuttle, nor is it the industrial robot. Our symbol of the future is the computer-driving microchip, the component that makes those other marvels possible.

Because of the microchip and the technology it allows, we see ourselves at the beginning of a new age that can be likened in scope of social impact to the industrial revolution. We have taken to calling it the electronic revolution and post-industrial society, among other things.

In attempting to speak about communication in that age, whatever one calls it, one is confronted by some intimidating challenges. The first is to say anything of value in ten minutes. The second challenge, undoubtedly the more intimidating, is to say something of value about communication in the future when it is so difficult to make sense of communication in the present.

When we look to the future of anything, we are eventually confronted by a litany of coming attractions. In the field of communication such a litany could include cheap long-distance telephone calls (a call to Europe for the price of a hamburger and fries); persuasion and social control by drugs; computer information systems that increase the ability of an elite -- even in a democratic society -- to manipulate the public; and computers that can translate correctly from one language to another.

Those are, of course, things we hear about. Edwin Parker of Stanford called such speculations "a form of science fiction writing," but Parker also suggests that such speculation could be useful in pointing out the more plausible paths along which communication media might develop.(Parker, 1973)

My purpose is not to offer any litany, but rather to offer five ideas as to how we can rationally sort out the many predictions we will hear. Four of the five ideas can be justified rather briefly, but the last requires a somewhat extensive argument.

The first idea has to do with what predictions we can trust. I think we can see the logic of Donald Schon's statement: "When you say there is going to be an invention ten years from now..., you have in effect made that invention. The forcasting of invention is not separate from invention itself." (Bell, p. 333) The statement was made in 1967 when Schon was involved in the study of forcasting as president of the Organization for Social and Technical Innovation and a member of the Commission on the Year 2000.

We can reason from Schon's statement that, if we can think of a communication technology in the future, that communication technology will probably be created. Any communication technology you can think of will stand a very good chance of becoming reality in the future.

The second idea has to do with the scope of reliable predictions. Being able to confidently forcast the communication technology we can think of means only that one will be able to predict a portion of the future of communication technology, not that we will be able to predict all or even most of it. There seems to exist little disagreement among serious forcasters that technologies will be invented that even they will not be able to predict. Hadly Donovan, then editor-in-chief of Time, Inc. and also a member of the Commission on the Year 2000, applied that idea to communication.

Speaking in 1967 he said that he could sketch "trends that theoretically should have a predictable influence on the course of communications media over the next twenty or thirty years." Then he said, "I suspect, however, that some schoolboy, now fourteen years old, whose name I do not know, is going to conceive of an idea in 1981 that will have more influence on what communications are like in 2000 than anything I or my colleagues could logically project from today."(Bell, 1967, p. 348)

Thus, the inventions of some of the more influential communications technologies will be absolutely unpredictable even by the most serious forcasters.

The third idea has to do with the influence of future communication technologies. It follows from the last idea that we are not able to predict which communication technology will be dominant -- i.e. most widely influential -- within a technologically advanced society, at least not at any significant distance in the future. We will obviously be able to predict that technologies now being adopted will continue to be adopted. And we will be able to predict, of course, that the new dominant communication technology will be more technologically advanced than its predicessor.

The fourth idea, a very common one, is that new communication technologies will not make previous communication technologies obsolete. The telephone did not make the telegraph obsolete; television did not make radio obsolete; etc.

The fifth idea has to do with the prediction of the speed of change in mass communication.

Early in this century the historian Henry Adams spoke of the "law of acceleration." Adams said it was possible to plot in graphs the progress of new forces in the harnessing of power. His idea was that in almost any application of force you want to measure there was constant acceleration. With progress through time, changes became larger and the times between changes became shorter.

An example can be seen in humankind's progressive harnessing of the forces of nature to produce power. Human beings tamed fire, then water, then steam, then electricity, then the atom. If we look at time, we see that the the time between successive developments is always shorter. For example, the time between the harnessing of electricity and the harnessing of nuclear power was shorter than the time between the harnessing of steam and electricity.

I am not prepared to say that Adams idea provides a good guide to the future of mass communication, though at first glance a common sense fit seems to exist. We must recognize that communication technologies were invented at a much faster rate after the industrial revolution than before. If we trace from ancient times the history of new dominant (widely influential) media, we see Adam's idea at work. We see an acceleration curve if we trace the time from clay to parchment, from parchment to papyrus, from papyrus to paper and pen, from paper and pen to paper and wood block printing, from block printing to movable type, from movable type to telegraph. The law of acceleration seems to fit, and I do not deny its fit through the centuries.

For several reasons I do question the reliability of an acceleration curve as a guide to predicting the future of mass communications.

My first reason is that, speaking of technological change in general, Schon has stated that we cannot predict the rate of change.(Bell, p. 334) If we cannot predict the rate of technological change in general, it follows that we will not be able to predict the rate of technological change in mass communications.

A second reason for rejecting an acceleration curve as a guide to future mass communications is the fact that, since the Industrial Revolution, an acceleration curve has not matched the invention of major communication technologies. If we look at the dates of the invention of the five major communication technologies invented since the Industrial Revolution, we do not see a nice even acceleration. If we look at the time between the inventions of telegraph, telephone, movies, radio and television, we see that an acceleration curve does not fit.

In making such observations, we do have to be careful about bending and shaping history in order to prove or disprove the hypothesis. My demonstration and any others should be examined carefully to ensure that we have not included or excluded significant events so history will appear to validate or contradict the forcasting of future mass media with an acceleration curve.

My last reason for rejecting the curve to predict future mass communications is the fact that the future will be one not only of invention but also of adaptation. For argument's sake, let's grant that in the future significant mass communications technologies will be invented at ever increasing rates. That would not guarantee that the inventions would be incorporated into the mass communications system at a predictable rate. Adoption of innovative communication technologies in modern regulated, heavily bureaucratized societies is not likely to be as smoothly curved as the harnessing of power or the invention of communication technologies before the industrial revolution. We cannot loose track of the fact that contemporary societies are far more regulated and far more bureaucratic than societies before the Industrial Revolution.

The argument here is that even if we could count on a smooth acceleration in invention of mass communication technology, we would not be able to predict a smooth acceleration in adoption of those technologies. It took 20 years after Marconi invented radio until radio was converted into an experimental mass medium. But it took approximately 27 years in America between the invention of television technology until TV became an available mass medium. And I would place the time between the availability of conventional broadcast television to the general availability of cable-microwave-satelite television (contemporary cable TV) at about 23 years.

To summarize, there are five ideas which seem capable of providing logical guides to sorting out predictions about future communications.

1) Any communication technology we can think of will stand a very good chance of becoming reality in the future. 2) The inventions of some of the more influential communications technologies will be absolutely unpredictable even by the more serious forcasters. 3) It will be impossible to predict which communication technology will be dominant -- i.e. most widely influential -- within a technologically advanced society at any significant distance in the future. 4) New communication technologies will not make previous communication technologies obsolete. 5) We should be skeptical about basing predictions of the future of mass communication on the notion that changes will follow an acceleration curve.

APPENDIX

James Martin
Computer
Scientist

--The maximum number of communication satelites which can operate from orbit over the equator without interfering with eachother may be as low as 75. Competition among nations for the use of this limited resource could become a major factor in determining the future of communications.(Martin)

Lane Jennings
Research Director
for the World
Society

--"In the long run, it may well be that gradual, relatively unheralded changes in language and social attitudes, combined with economic pressures, government regulations, and the outcome of research in areas not normally considered part of 'the communications field' will expand the possibilities for exchanging information and ideas far beyond the limits imposed by new technology."

--Domestic satelites, which can replace conventional land line networks, "are gaining support from many business and public interest groups in the United States and seem likely to become widely used in the future."

--"Growing reliance on satellites for both long-range and domestic communications raises ...the possibility of accidental or deliberate disruption of service. Both the Soviet Union and the United States are known to be experimenting with laser weapons that could disable a satelite. In the future, other nations -- and even international terrorist groups -- may conceivably build or acquire such weapons and threaton to disrupt satellite communications anywhere in the world."

--"Since even very brief interruptions of service could cause serious problems for high-speed communications equipment, satellites are unlikely to replace all other forms of long-distance communications systems."

--"More nations can afford to build and launch smaller, lighter satellites, but these require the use of large, expensive transmitting and receiving stations on the ground. For the forseeable future, the poorer nations of the world will either have to depend on communications satellites launched (and ultimately controllable) by one of the major powers, or content themselves

with homemade but clearly inferior systems accessible only at a few locations on the ground."

--Large quantities of information can be sent through optical fibers at great speed. A single fiber one-fifth the thickness of a human hair could do the work of 10,000 ordinary telephone wires or it could carry 8,000 TV channels at the same time. Such fiber optical systems are likely to be commonplace by 1989.

--"It appears likely that both videotape and videodisc equipment will be used more and more widely in the future and that neither system will entirely eliminate the other -- just as long-playing phonograph records and audio tapes share the market for sound recordings today."

--"It may even prove feasible to combine amateur radio and home computing by broadcasting computer data over the air. Some day, special radio stations may broadcast a steady stream of computer-readable information that could be automatically recorded and stored in the memory bank of a home computer."

--"Entire discs or tapes of advertising could...be distributed -- as an updated form of Sears Robuck Catalog -- enabling potential buyers to see items demonstrated...."

--In order to reach new markets of viewers from many cultural and linguistic backgrounds, TV commercials of the future may be streamlined "to eliminate the need for words and background settings as much as possible."

--NASA has announced the goal of communication satellite service that would provide two-way TV connections between fixed stations and two-way voice connections between moving terminals anywhere in the United States.

--"Videodisc recordings could revolutionize public libraries by making it possible to store material originally produced in a variety of different formats conveniently in one location. Black and white and color photographs, artwork, movie films, sound or video recordings, and pages of print can all be stored on a videodisc and be accessible to users on an ordinary TV screen."

--"Increasing dependence upon computers is likely to produce modification in human languages that will

make them less inconsistent in spelling, grammar, and meaning so that the same written text or spoken phrase will be equally comprehensible to man and machine."

--The entire scope and process of communications could be radically transformed overnight by a breakthrough in telepathy, direct communication with animals, man/machine symbiosis (linking a human brain directly with a computer), or extraterrestrial communication.

Kenneth Edwards
Professor Emeritus
of journalism
University of
Alabama

--"Recent developments and experience in Great Britain provide strong evidence that teletext, the one-way broadcast of information that appears as 'print' on home TV screens, will be the next -- and perhpas the only -- commercially successful advertising medium. It will reach far more homes than cable or phone-connected systems, which will all suffer from extreme audience fragmentation. Its universal availability to consumers will enable teletext to develop into the most efficient and effective method of advertising."

--It is easy to see why Sears has applied for no fewer than 14 licenses to operate low power television stations throughout the country. The Sears-financed Neighborhood TV of Prescott, Arizona, claims that it intends to create a fourth TV network that will feature family entertainment. "But Sears's long experience with direct mail advertising (particularly its famous catalog) suggests that it cannot be blind to the advertising potential of LP-TV using broadcast teletext to produce a form of electronic 'super shopper.'"

...."Sears, through its LP-TV stations could deliver hundreds of pages of its own advertising to customers, in response to their requests, every hour of the day, and still have large amounts of time available to sell to other advertisers -- and all without curtailing in any way a full schedule of news, information, and game shows designed to attract and hold viewers. In fact, the entire Sears catalog could be broadcast in teletext format using only a small fraction of available broadcast time."

--Every US home could have a teletext tuner before 1992. At that point, advertisers will find it cheaper to reach desired audiences with teletext since it uses no paper, print or handling.

--"The cost of delivering this (teletext) advertising will be extremely low, for the TV station can send out up to 25 pages of teletext print for display on a viewer's home screen in one-tenth of a second. Compare this with the six to eight minutes of broadcast time required to deliver a comparable advertising message on commercial TV as we know it today."

--"American teletext development might already be well into the commercial stage if the FCC had provided leadership by establishing standards and specifications for broadcasting and receiving teletext signals. The teletext standards developed, with government support, in France and Canada differ from those governing commercial teletext operations in Great Britain and most of Western Europe. In the late 1970s, at a time when it appeared that the British system might well be adopted as the U.S. standard, CBS television, one of the leaders in American experimentation with teletest, endorsed the French system instead. Later, the FCC said it would 'let the market decide' which system would become standard in the United States.

"Some observers have suggested that CBS and the other major networks are in no hurry to begin American development of teletext because they are making good profits from their existing operations and have no incentive to introduce changes that would interfere with current television advertising practices."

--At least 1,000 low-power (LP-TV) stations are expected to begin broadcasting before 1988. News from these stations will not necessarily put newspapers out of business, but the advertising competition offered by teletext might.(Edwards, 1982)

Leanna Skarnulis
Freelance writer

--"Viewdata represents a 'three company' marriage of of computer, television, and telephone. It's two-way, so the user can send as well as receive information over phone lines (or, conceivably, two-way cable). Potentially, 2-5 of U.S. households will be served by 1985, according to the Institute for the Future, and 30-40 by 2000."

--"Perhaps there will be a future in which the only print vestige remaining will be the cereal box. Or it could happen that the videotex revolution we anticipate will not occur."(Skarnulis)

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